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Adams

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AN ACCOUNT OF THE INFLUENZA AS IT APPEARED
IN PHILADELPHIA IN THE WINTERS OF
1889-'90 AND OF 1891-'92.

BY J. HOWE ADAMS, M.D.,
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THE following account contains an attempt to give some description of the epidemic of influenza during the winters of 1889-'90 and 1891-'92. In order to accomplish this purpose in as thoroughly practical a manner as possible, the following questions were sent to different physicians throughout the city asking them for short, concise notes of their own experiences. In requesting physicians to answer these questions it was attempted, although, of course, it could be done only in an imperfect manner, to select only those physicians whose fields of work lay in different sections of the city and its suburbs. Although their time was filled completely with other work, at a period of the year when the busy physician is always busiest, yet a majority of the physicians found time to answer these questions. To them are my thanks due for their courtesy.

The questions asked were as follows:

- (1) "In what percentage of your cases under treatment have you found epidemic influenza to exist?
- (2) On what do you base a diagnosis of the disease?
- (3) Do there seem to be any natural divisions into which these cases can be placed, either from similarity of symptoms, course, treatment, etc.? If so, what are these points?
- (4) What course of treatment has met with particular success or failure in your hands?
- (5) What has been your mortality?
- (6) How does the present epidemic compare with the epidemic of two years ago in symptoms, course, treatment, mortality, etc.?
- (7) How does the disease of the winter compare with that of other winters in which no epidemic existed?

Any other points not covered by these questions will be gladly received."

No attempt was made to determine the contagion of the disease, as until more definite knowledge is obtained of its pathogenesis and pathological lesions, much must be conjecture; moreover, the fact that it is in some way extremely contagious is generally accepted by the profession. In the same way the questions of the sequelæ and the complications were not especially inquired into, as the limit to which epidemic influenza can be accompanied by complications and sequelæ is still a matter of dispute, which naturally distracts attention from the subject of influenza, strictly considered. Information on these interesting subjects, however, was kindly given by many physicians.

Not only were these questions sent to general practitioners, but specialists



in certain lines of work were included—ophthalmologists, surgeons, neurologists, hospital superintendents, etc.

The answers are given in the order of their receipt.

DR. WILLIAM PEPPER.—(1) Influenza is certainly very prevalent again this winter. A large percentage, probably one-third of the acute cases I see, present some form of the disease.

(2) As in most epidemics the disease shows itself by acute, severe and rather intractable catarrhal inflammation of some one or more mucous surfaces, associated with considerable fever and a marked degree of sensitiveness and weakness of the nervous system.

(3) The most common expressions of the disease are bronchial catarrhal fever, gastric catarrhal fever and gastro-intestinal catarrhal fever. In some cases rheumatoid symptoms, probably associated with perineuritis, are very prominent.

(4) Absolute rest in bed and the avoidance of irritating and depressing remedies are the essential features of successful treatment. Much judgment is required in ordering the diet and stimulants. Prolonged and extreme care is needed during convalescence, for exertion or exposure is apt to induce grave relapses. Cases of gastric type may simulate closely typhoid fever and present similar indications for treatment. Quinia is generally needed, but owing to irritability of the stomach often has to be given by rectum. Strychnia in solution, with dilute mineral acids, is very valuable. Asafoetida in form of suppository, with quinia, may suffice to control the nervous symptoms, but opium may have to be given by the rectum or in the form of morphia, hypodermically.

(5) The mortality is very low if cases are seen early and are promptly put to bed and persistently confined there with rigid restrictions, and if convalescence is very cautiously guarded. Complications are usually traceable to some neglect of these rules. Complicated cases and relapses are always serious and present a considerable rate of mortality.

(6) The present epidemic is very similar to that of two years ago. The general type of cases is probably as yet somewhat milder, but there is the same tendency to grave pulmonary, cerebro-spinal and gastro-intestinal complications.

DR. H. C. WOOD.—(1) The disease existed in nine-tenths of the acute diseases.

(2) Diagnosis rests on the atypical character of the symptoms; on the recognized presence of epidemic influence; on the excess of fever and other constitutional disturbance for the amount of local disease, and the development of fever before the local disease, showing that the latter is not the cause of the constitutional manifestations.

(3) The cases naturally divide themselves into those without and those with severe local manifestations. The local diseases may be pulmonic, intestinal and, in a few very severe cases, cardiac.

(4) My treatment has been to give a free sweat by a combination of pilocarpine, antipyrin and aconite, aided by hot pediluvium, etc., followed the next day with moderate doses of quinine, and meeting symptoms as they arise. I have repeatedly seen pneumonia apparently prevented by free cupping. In

the early stages of the bronchitis and pulmonic congestion, after or without local bloodletting, as may seem necessary, great advantage has apparently followed the use of the following sedative expectorant mixture, variously modified to suit individual cases :

R. Potass citrat ℥j.
 Apomorphinæ hydroch gr. j.
 Suc. limonis f℥j.
 Aquæ q. s. ad f℥iij.
 S.—Dessertspoonful every 3 hours.

In intestinal cases the use of suppositories and carbolic acid and bismuth have been very advantageous.

Stimulants are well borne. Strychnia in doses of one-twentieth of a grain, every eight hours, and the free use of digitalis with the moderate use of caffeine, have seemed very advantageous when cardiac failure has been noted. In the sudden cases, in which it has seemed as if the irregular, arhythmical, feeble cardiac action must end in death, doses of twenty to thirty minims of the tincture of digitalis, at short intervals, have seemingly saved life.

(5) I have had no deaths in my own practice, but have been called at the close of two cases of fatal pneumonia, presumably due to "grip," and occurring in persons thoroughly broken down with chronic disease.

(6) In my practice the present epidemic has been very light, usually yielding to treatment in twenty-four hours, except in persons who are feeble from pulmonic or other chronic diseases, and in the aged. Old people have been especially attacked.

DR. JOHN ASHHURST, JR.—I am not engaged in general family practice, and have therefore seen comparatively few cases of the prevailing influenza, so that my answers to your questions will not have much value :

(1) Epidemic influenza has existed probably in about ten per cent.

(2) Diagnosis based mainly on violence of general symptoms with paucity of evidence of local disturbance, on suddenness of onset, and on persistence of debility during convalescence.

(3) In some cases catarrhal symptoms were prominent ; in others, headaches and spinal pains, probably meningeal.

(4) Saline febrifuges during acute stage with long use of quinia afterward have proved satisfactory.

(5) I have seen no fatal cases.

(6) I think the epidemic is milder than that of two years ago.

(7) The cases seem to me severer than that of seasons without epidemic.

DR. DE FOREST WILLARD.—(1) Influenza exists in perhaps five per cent. of my cases.

(2) Diagnosis was based on rapidity of onset ; intense headache ; muscular pains ; high initial temperature.

(3) The cases seemed to be divided naturally into (a) catarrhal symptoms in air passages ; (b) in intestinal tract, especially in children.

(4) Treatment most beneficial was quinia, nux vomica, camphor, acetanilide for headache and for pain.

(5) I have had only one death from double pneumonia.

(6) The epidemic of this winter seems less severe as regards chest complications; headache more intense.

(7) The amount of disease prevalent compared with other winters is about the same.

DR. W. W. KEEN.—I have seen very little of the influenza itself. The only serious surgical trouble has been a marked swelling of the tissues, especially of the glands around the angle of the jaws to such an extent as to produce serious dyspnoea with a sense of impending suffocation.

DR. J. WILLIAM WHITE.—Although I have practically given up general medical work, and have therefore seen comparatively few cases of influenza during the present epidemic, I am very glad to supply whatever information I can in aid of the interesting research which you are conducting. I may answer several of your questions at once, and briefly, by saying that none of my surgical patients, who have been confined to bed and who have not been in contact with other persons having the disease, have developed it. In those who did manifest its symptoms there were invariably other persons in the house who had previously suffered from it. All these cases ran a mild course. If I can judge from the number of cases who sent after me or applied to me for treatment, but whom I referred to younger men engaged in general practice, I should say that the disease has been even more prevalent this winter than in the previous epidemic, but I am also of the opinion that it ran a milder course. The most natural practical classification which has occurred to me is based upon the system or organs upon which the disease expended its force. Cases could be roughly grouped into (1) those characterized by the sudden onset of widely distributed muscular pains, with high fever, but without cough or gastro-intestinal symptoms; (2) those with laryngeal or bronchial catarrh in addition, often followed by anomalous pulmonary disturbances resembling pneumonias, but not identical with them either in their physical signs or in their clinical course; (3) those in which the mucous membrane of the digestive tract seemed especially to bear the brunt of the attack, and in which there were vomiting, diarrhoea, and sometimes bloody evacuations; (4) those in which the nervous system suffered most markedly, and which were characterized by headache or delirium, and sometimes, apparently through nerve influence, by extraordinary cardiac and respiratory symptoms. I may add that I base these remarks largely upon my experience in the former epidemic, which was, for the reason above stated, much greater than in the present one. The most interesting series of cases of influenza I have seen recently, may be epitomized as follows, and are grouped together on account of the age of the patients:

CASE I.—Mrs. —, aged 71, after a severe rigor, developed within three hours hæmoptysis, widespread moist râles over both lungs and a patch of apparent consolidation near the base of the right lung. Two days later, during the gradual disappearance of these symptoms, the heart suddenly became irregular and intermittent, the pulse rate running up to 140 then to 180, and even beyond that. Three days later, after another period of slight improvement, this recurred, and persisted for seventy-two hours. During this time the cough and fever lessened. There was manifest old mitral disease, and during the attack the urine was found to be albuminous and to contain granular casts.

CASE II.—Mrs. —, aged 73, had a similar attack as regards onset and pulmonary symptoms. In this case there was no cardiac failure, but there were occasionally violent gastro-intestinal symptoms—diarrhoea, tenesmus and bloody passages—during the presence of which the irritating and racking cough would almost entirely disappear, and the temperature and pulse rate greatly improve. These alternations occurred several times during her illness.

CASE III.—Mr. —, aged 75, had an attack which was characterized by moderate fever and slight cough, but in which there was violent trigeminal neuralgia, and during convalescence sudden and temporary retention of urine, apparently from prostatic congestion.

CASE IV.—Mrs. —, aged 78, had the usual pulmonary symptoms with the same abatement, which was noticeable in Case II, when there was looseness of the bowels. Convalescence was marked by racking pains for a time, localized in the region of the right kidney and shooting downward to the bladder.

CASE V.—Mr. —, aged 79, presented the usual symptoms as regards the lungs, was extremely ill, but was notably improved upon the spontaneous appearance of looseness of the bowels, and afterward made a good recovery.

CASE VI.—Mr. —, aged 83, went through a precisely similar attack.

All these patients are now entirely convalescent. The cases have been interesting to me (*a*) on account of the advanced ages of the patients; (*b*) because in every case there was amelioration of one set of symptoms, notably the pulmonary, when another and distinct set developed; (*c*) because in each instance other cases in the same household followed, and (*d*) because, although (with the exception of Case III) they were all desperately ill, they, none of them, succumbed to the attack in spite of the unfavorable influence of their advanced years and the concomitant visceral changes.

Cases I, IV, V and VI have had evidences of chronic nephritis for years, and in addition have valvular heart disease. I attended them on account of long-standing personal relations, or for the reason that they had already been my patients for many years.

The most interesting question, which you fail to suggest in your circular letter, is that of contagion. In this respect I would beg to refer you to the paper published by Professor Guit  ras and myself¹ which, it seems to me, demonstrates the contagiousness of the disease beyond all question. It details a series of nineteen cases, the first of which occurred in a patient with whom I was travelling in Europe in December, 1879, and in whom the influenza precipitated a fatal result from an encephalo-meningitis of some standing. The body was embalmed and brought to Philadelphia, and the other eighteen cases of the series developed among the relatives and friends or those who came in close contact with them. In no case was the infection the starting-point of a local epidemic. There was reason to believe that in that year a general epidemic of influenza was prevailing in Europe, but such was not the case in this country.

¹ Philadelphia Medical Times, April 10, 1880.

DR. M. H. FUSSELL, Manayunk.—(1) From December 1 to December 31, seventy-five per cent. of cases treated had epidemic influenza.

(2) Sudden chill or chilly feeling; coryza, muscular pains, sore throat, fever, with usually bronchitis. Usually the fever disappears in twenty-four or forty-eight hours, but the bronchitis persists. There is frequently marked exhaustion.

(3) (a) Bronchitic form. This variety was marked by moderate fever, with bronchitis as the chief symptom, the other symptoms secondary. This is the most persistent form. (b) A rheumatoid form, high fever, much muscular pain, sore throat, headache. This form usually recovers in forty-eight to seventy-two hours. There are, of course, border-line cases.

(4) Rest. Salol and phenacetin each two and a half grains for fever and pains. A cough mixture of

R. Morph. sulph.	gr. ss.
Potass. brom.	
Potass. cit.	āā 3ij.
Syr. ipecac.	f3ij.
Succus limonis	3iss.
Syr. simp.	q. s. ad 3iij.

Sig.—Two drachms every two hours.

When expectoration is established, then potassium citrate and ipecac can be replaced by ammonium chloride and squills. This is followed by strychnine as a general tonic.

(5) No deaths in any way attributable to influenza.

(6) Symptoms are much the same, but much less severe. Course is shorter. Treatment yields better results. Mortality is much less. In my work not a single case of pneumonia followed, and no other sequelæ.

(7) Other disease does not seem more prevalent this winter.

DR. JUDSON DALAND.—(1) During the past two months about fifty per cent. of my cases have suffered from influenza.

(2) I base the diagnosis upon (a) profound depression; (b) evidences of catarrhal inflammation of any of the *mucous membranes without cause*; (c) excessive pain; (d) tendency of bronchitis becoming capillary, and then affecting the alveoli, producing catarrhal pneumonia; (e) by a viscid, solid, grayish, yellow sputum, requiring many acts of coughing for its ejection; (f) marked tendency to sweating.

(3) In answer to your third question, I should say that influenza naturally divides itself into naso-pharyngeal or pulmonary form, including bronchitis and catarrhal pneumonia, or gastric and intestinal form with catarrhal inflammation of the bile-ducts, or a combination of any of these, or the cerebral or nervous form. Many cases of this variety presented delirium and, at times, more or less persistent hallucinations, double-consciousness, etc. In several the severe pain complained of was associated with more or less tenderness on pressure, justifying the suspicion that neuritis existed.

In answer to your fourth question, I would say that all of the gastric, hepatic and intestinal cases seem benefited by the use of calomel, grain $\frac{1}{6}$, with sodium bicarb., grains v, every two hours until eight doses were taken; and,

in addition, many of the pulmonary cases were benefited by this same remedy. The pulmonary cases also derived benefit from ammonia chloride, grains vii to grains x, and mistura glycyrrhiza comp., fluid drachms j, every four hours; with quinine, grains iij; strychnine, grain $\frac{1}{10}$, four times a day, and in addition to this whiskey or brandy, fluid ounce, ss. to j, well diluted and repeated every two or four hours during the day.

The cerebral cases received quinine, strychnine, in *tonic* doses, and *small* doses of alcohol, also potassium bromide; the neuritis cases received the same treatment; but antipyrine, grains x, and sodium salicylate, grains x, four times daily, were substituted for the potassium bromide, and, in addition, counter-irritation was ordered.

Regarding question five, I hesitate to speak, as most of my cases were complicated—*i. e.*, patients already suffering from other diseases, or the patients were 50, 60, 70, or 80 years of age, so that my mortality is in all probability relatively greater than it should be. Five per cent. is my rate of mortality at this date of writing.

To question six, I may say the present epidemic is in many respects quite different from that which occurred two years ago. The profound nervous depression and catarrhal inflammation of the upper passages are very much *less* frequent; and while it seems that the aged are *more* frequently attacked, and that severe bronchitis quickly becoming capillary with collapse of the lung and congestion with areas of catarrhal pneumonia was, on the whole, much more frequent, yet its duration is about the same, and I cannot be precise; but so far as I remember the gastro-intestinal and cerebral cases are also more frequent. Naturally, the greater frequency of the more serious pulmonary trouble calls for pulmonary remedies, and the same is true of the gastro-intestinal cases. On the whole, I am inclined to think that severe nerve pains have been rather less frequent.

The question of the transference of the morbid process from the gastro-intestinal tract to the pulmonary mucous membrane and *vice versa*, or from the pulmonary to the gastro-intestinal to the cerebral, was particularly striking, and the rapid disappearance of physical signs, of marked changes in the lung, could only be explained by the presence of severe congestion, obstruction of the capillary bronchial tubes with thick tenacious mucus, causing collapse of the lungs. In four cases marked improvement in the pulmonary symptoms was observed upon the occurrence of spontaneous or induced diarrhœa. The disease is distinctly contagious. I have seen also one case of acute endocarditis of the aortic leaflets produced by the poison.

DR. E. S. VANDERSLICE.—I would state that the cases that come under my observation at the Philadelphia Dispensary are all walking cases, and that they could be more properly called cases of epidemic bronchitis than of influenza. Coryza does not seem to be marked in the great proportion of cases, and there is little to distinguish from an ordinary "cold," except a greater amount of muscular pain and depression, with loss of appetite. It is rather amusing to note the importance my patients attach to the latter symptom. Most of the patients who present themselves here, and tell me they have "the

grippe," have the ordinary mild catarrh that we have every winter, and would not ordinarily have come for any treatment if it had not been for the effect upon their imagination produced by the reports in the daily newspapers. As to the treatment, most of those who return report improvement from the muriate of ammonia and sulphate of cinchona, which, combined with some bromide of potassium, are the medicines upon which I have relied. Where there were much fever and coryza, a mixture of aconite and belladonna has been useful. The sulphate of cinchona, given in pill in doses of nine to twelve grains daily, I have found equally as efficacious as the sulphate of quinia.

DR. EDWARD MARTIN.—In answer to your questions, it is difficult to answer accurately in regard to the percentage of cases under my treatment who have suffered from the epidemic of influenza. I should state as a rough guess that one out of every ten would be the number.

The diagnosis of the disease is often a matter of some difficulty. Thus, in one case of measles and in one of scarlet fever, it was impossible practically to determine the nature of the attack until the eruption appeared. I have no doubt that many mistakes have been made. Some of these have come under my own observation.

In general terms, the influenza has seemed to be characterized by muscular pain, fever, inflammation of the mucous membranes, particularly of the throat and lungs, but not infrequently of the alimentary tract, by severe headache and by great prostration. Before deciding as to the diagnosis, the possibility of other pathological conditions must be carefully considered.

The classification of the disease must depend upon the particular part of the organism which bears the brunt of the attack. Thus in some cases the symptoms were mainly in connection with the nervous system, in others the lungs seem to suffer, in still others the alimentary canal. I observed two cases in which continued vertigo, associated with mild fever and profound prostration, were the principal symptoms. In one case there was partial paraplegia for twenty-four hours. This vanished after several copious evacuations from the bowels.

My treatment has consisted in the administration of a prolonged hot bath, followed by inunction of the entire body. Olive oil, cocoanut oil, or lard deprived of its salt, slightly perfumed, may be used for this purpose. I insisted on the patient's going to bed, and opened the bowels freely, administering bromide of potassium or bromo-caffeine in case of violent headache. The treatment from the onset of the disease has been a supporting one, paying particular attention to keeping the bowels opened freely and to keeping the stomach in such a condition that an abundance of liquid food could be taken and assimilated. Stimulants have been used freely, whiskey and soda being preferred, since it seems to agree better with irritated stomachs than any other of the forms of alcohol. In nearly all cases, after the violence of the paroxysm was passed, strychnia or nux vomica was administered in fairly full doses, combining these drugs with wine of coca. The convalescent treatment is the one which is particularly liable to be neglected. A tonic treatment should be continued for weeks after the patient is out of bed, for in nearly all cases there is either

weakness with slight cough or some after-effect of the disease which should be entirely eradicated before the patient is considered cured. If he is in good circumstances, massage may be ordered as soon as the fever has subsided. Three to seven days at the seashore or in the pines will greatly hasten entire recovery when convalescence has progressed sufficiently to allow of a journey. When these patients resume work they are instructed to begin gradually, never in any one day continuing their avocation to the point of exhaustion.

I have had the good fortune to lose no cases in this epidemic.

In regard to a comparison between the disease as it appears at present and as it was two years ago, it has seemed to be much milder in course and to be followed by much lower mortality. As to treatment, at that time I used antipyretics. I have given this in none at all. In regard to the diseases of this winter, aside from influenza, they seem to me no more rife nor more violent than in former years.

There is one point which your paper does not mention, which is of great importance, and upon which opinions vary: I refer to the question of contagiousness of "grip."¹ From the clinical aspect this seems to me as clearly demonstrated as is the contagiousness of any known disease. Many families remain immune for one or two months, then, following the first case in the house, every member of that family will be attacked with greater or less severity. It is not possible to set any period as representing the incubation of the disease, as this has seemed to vary from a few days to one or two weeks.

DR. J. M. ANDERS.—(1) Epidemic influenza existed in more than fifty per cent. of cases.

(2) A diagnosis rested on march of the epidemic, great physical prostration, the mode of onset (*i. e.*, the slight rigors, the sudden development of the fevers, the intense headache and muscular pains), the appearance at once or soon of catarrhal symptoms, the loud, racking, paroxysmal cough, the anorexia, coated tongue, constipation usually, at times diarrhoea, and finally the nervous phenomena, more especially dizziness on rising, the pains, sleeplessness, restlessness, and, at times, hebetude, frequently slight delirium, rarely quite active.

(3) The cases should be arranged according to their severity—into mild, moderately severe and severe cases. Types merge into each other in the same case and would have to be very numerous to cover all cases.

(4) Cooling drinks, benzoate of sodium, quinine and phenacetin; during convalescence, iron and strychnia; the catarrh, on general principles.

(5) Less than one-half of one per cent.

(6) More throat complications, more hoarseness, more cases of lobar pneumonia; cases of longer duration, more depression of spirits, more neuralgias, etc., than two years ago.

(7) No answer.

DR. B. C. HIRST.—A most unpleasant accident has happened in my practice during this and in the last epidemic of "la grippe." I have lost in each a patient from double croupous pneumonia, brought on by ether given for the performance of an abdominal section. In both instances the patients had passed through an attack, but had apparently entirely recovered and had been

¹ See page 24, "The Spread of Influenza in the Mountains of Switzerland."

well for some time. A post-mortem examination was made in each case, demonstrating the existence of most extensive pneumonic consolidation, and showing the peritoneal cavity to be healthy.

DR. E. W. WATSON.—(1) Fully eighty per cent. of cases since Dec. 1 have exhibited symptoms of the prevailing epidemic. The cases of simple influenza in one or other of its forms were about fifty per cent.

(2) On the initial chills and fevers and prodromata generally, and on groups of symptoms easily recognized as belonging to influenza.

(3) Broadly, into pulmonary, abdominal and nervous, but besides this into distinct attacks of the biliary and renal systems, with symptoms quite different from any previously known affections of these organs.

(4) Salicin in large doses, ʒij to ʒiij a day, has been my main reliance since fall of '89. It cuts short the fever, relieves pain, and seems followed by fewer relapses. It is a tonic when other antipyretics are apt to prove depressing.

(5) In 1889-'90 very low, in '90-'91 a little higher. If the mortality subsequent to apparent recovery, especially in the spring, summer and early fall, of '91, be considered (including sudden deaths), the mortality would be, in 1890, above the average of years in general. This year more fatal, mostly in aged.

(6) This is answered partly above. The number of *cases* this winter is less than in epidemic weeks of '89-'90. The number of visits made, greater, in consequence of there being fewer sick in a family at once. This year large groups of cases much more rare. Families suffered one at a time. As to variations in the type of epidemic, lung complications followed more frequently this year and were more serious. Certain peculiarities of the '89 epidemic seldom appear this year, while certain features occasionally met with in '89 are more constantly encountered. Treatment has been varied both by larger experience and by the need of seeking new remedies from the unsatisfactory action of old ones.

(7) The actual amount of disease, viz., number of cases requiring visits, seems at least one-third greater this December than in any December preceding '89.

DR. S. D. RISLEY.—I have seen no eye trouble following or attending upon influenza that seemed in any sense characteristic of that disease. I have seen many cases of eye disorder dating back to an attack of influenza, and many other instances of relapses of former trouble, or great aggravation of existing disorder following in its train, but I might say the same of other forms of disease which depress the vitality of the patient. *Per contra*, I recall the case of a gentleman who had suffered much inconvenience and pain from some irregular anomaly of the ocular balance. Tonics, a journey, glasses had failed to give him relief, and he was advised of the probable necessity for a tenotomy of the ocular muscles. He recovered from an attack of influenza which confined him to his room for three weeks, to find that his eye trouble had vanished. At the end of a month he came simply to report this fact, and careful examination revealed no lack of muscular balance, and he was able to use his eyes with impunity. His general health, however, was better after the attack than before.

DR. C. A. OLIVER.—In my experience, the ocular manifestations of influenza this winter are most peculiar, and in many instances symptomatic, consisting of two groups: first, pronounced and tedious conjunctival and lid inflammation, and, second, deep-seated ocular and supraorbital pain, with and without occipital neuralgia, in association with anæsthesia, phosphenes, scintillating scotomata, and curious visual hallucinations which are not strictly hemiopic in character. Briefly, there have been two separate forms—one connected with mucous membrane and skin disturbance, and the other associated with deep-seated vascular or neural disorder.

DR. J. MADISON TAYLOR.—My hospital service this fall is chiefly among children—at the Polyclinic and Children's Hospital. The influenza prevailed among these much, but was rarely to be distinguished from simple catarrhal states.

A few cases of broncho-pneumonia appeared, but moderately mild, and all recovering. The convalescence from these often seemed very slow. Much vaso-motor disturbance noted; sweating, not seldom asymmetrical; and two instances of mild delirium, with temperature of not over 103° . I think children are attacked less frequently, perhaps, in proportion to adults, than in recent epidemics; at least the maladies observed were, in my experience, less clearly due to this cause.

Among adults, it has been my observation—limiting myself again strictly to my own cases—that the virulence was expended rather frequently upon the intestinal tract, emesis being a frequent and distressing feature, relieved best by a diet of koumyss alone for some days, several instances of symptoms so strongly simulating typhoid fever that for days I was in perplexity. No deaths are placed to my credit, and no very grave conditions other than those of extreme prostration and cardiac weakness in certain aged folk. For these, I found a prompt clearing of the wasteways, absolute rest and diffusible stimulants sufficient.

On neurasthenic people, kept at rest, the malady touched lightly, but left much vaso-motor disturbance, as hyperidrosis and dense clouds of mental dejection most difficult to dissipate, and occasionally troublesome hallucinations and morbid fears. The innervation of the heart seemed to suffer most frequently, chiefly in weakening, tumultuous action and occasional dyspnœa.

I found much use in Warburg's tincture with curacoa and wines. Where a busy man insisted on early attending to business, this proved invaluable along with koumyss and matzoon and cabs and easy chairs and short spells of work, with rest between. I take satisfaction in feeling that often I was able to save important business engagements thus, at little risk in the obedient.

For high temperatures, antipyretics found cold shoulders from me. The diaphoretic properties of Warburg's tincture usually sufficed, with saline laxatives and hot foot-baths, oft repeated. For restlessness and lack of sleep, the hydrobromate of hyöscine proved a good tranquillizer, aiding to control, also, leaky skins. Again, to pick up the convalescent heart, large doses of strychnia are better than small along with quinia and hydrobromic acid, and sometimes strophanthus or sparteine.

The aggregate of sickness does not seem so much greater to me this winter when one remembers that its great openness enables the poorer patients to get more air and light. Dispensaries are not overcrowded; on the whole, wealthier people suffer most, possibly, by comparison.

DR. CHARLES A. CURRIE, Germantown.—(1) Epidemic influenza has existed in ten per cent. of my cases.

(2) Diagnosis is based upon: Chilly sensations, mental depression, headache, frontal, or even more frequently in back of head and neck; not so often pains in the loins; aching all over; bronchial or laryngeal catarrhs. Fever—not very high—not above 101° or 102° . Weakened heart very noticeable. Nausea; sometimes diarrhoea; more frequently constipation.

(3) Nervous; catarrhal.

(4) Phenacetin and quinia, $\bar{a}\bar{a}$ gr. ij every 3 hours, followed by ammonia carbonate, or ammonia chloride, if there are bronchial irritation and cough. Digitalis I frequently used for a time, and a tonic containing strychnia to be continued for some time.

(5) No deaths.

(6) Two years ago, headache and backache more prominent symptoms, also fever—temperature frequently 103° and 104° . Shorter course. Catarrhal diseases of larynx and chest not nearly so prominent. Heart not so weakened. In that epidemic I gave antipyrin and phenacetin. Patient frequently was over attack in two days.

(7) In other winters coryzas more common; nervous symptoms and chest troubles not marked. Catarrhal diseases of ear and larynx have been very common. Râles (dry) in bronchial tubes frequent; no pneumonia; one case pleurisy. Rheumatism of chest-muscles frequent.

DR. JAMES DARRACH, Germantown.—(1) About eighty per cent.

(2) On the suddenness of the attack, the great and sudden prostration of strength, the severe pain in head and body and the catarrhal symptoms in most of the cases confined to the larynx and trachea, with an unusually obstinate and paroxysmal cough, which in some cases resembled whooping-cough.

(3) Into the catarrhal and nervous forms. By *nervous* I mean when the disease spends its force entirely upon the brain and nervous system, as manifest by prostration of strength, with pains in head and limbs and trunk.

(4) I cannot say how much success has been derived from treatment. I have used, when the fever was high, a mixture as follows:

R	Tinct. of aconite	gtt. ij.
	Liq. potas. citratis	f℥ss.

Sig.—Every 2 hours.

The pains were almost universally relieved by five-grain doses of phenacetin every hour until pain was subdued. This followed, in the great majority of the cases, after the second or third dose of 5 grains was taken. Sometimes one dose was sufficient. I then gave muriate of ammonia and quinia; or if the pains still existed, though not in the severe form, I found cinchonidine salicylate useful. The obstinate and harassing cough was subdued in many cases by painting the neck over the region of the windpipe with a mixture of equal parts

of tincture of iodine and tincture of aconite, and at the same time using, for inhalations, compound tincture of benzoin.

(5) So far, up to January 11, I have had no deaths in my practice.

(6) The epidemic of this winter seems, in every essential, like that of 1889 and 1890.

(7) I should think the bills of mortality could answer this question. As far as my own experience goes, there has been no winter comparable to that of 1889-90, and this winter of 1891-92, as to the number of persons attended and the severity and peculiar nature of the symptoms.

DR. JAMES TYSON.—(1) The percentage of cases under treatment in which epidemic influenza existed was at least forty per cent. on Saturday, January 2, 1892.

(2) A diagnosis of the disease was based on chilliness rather than positive chill; bronchial catarrh sometimes accompanied by bronchial spasm, laryngitis, faucitis, severe pain in head, muscular pain, moderate fever. There was pneumonia in one case only; extreme irregularity of heart in one.

(3) There do not seem to be any natural divisions into which many cases can be placed, either from similarity of symptoms, course or treatment.

(4) The course of treatment pursued has been—immediate rest in bed. When pain is present, phenacetin, 5 grains; quinine, 2 grains or 3 grains; each every 4 hours, alternately. For bronchial catarrh and laryngitis, often very troublesome, ammonium chloride, gr. v, with liquor potas. citratis, fʒss, every 3 hours; continuous counter-irritation with mustard. Paregoric at night if cough is too troublesome; whiskey and aromatic spirits of ammonia where stimulation is needed. Whiskey early. Strychnine, doses of 1-30 to 1-25 grain three times a day, and, in case of threatened heart-failure, even four to six times. Belladonna or morphine when there is bronchial spasm. Do not allow patient to get up too soon or to go out too soon. Quinine during convalescence.

(5) Mortality has been as yet *nil*.

(6) The present epidemic differs from that of 1889-90 mainly in its mildness, the absence of coryza and sneezing, and in the rarity of pneumonia.

(7) It differs from that of other winters—the more epidemic forms—also in mildness, the absence of cold in the head, and the variety of its symptoms.

DR. L. F. FLICK.—(1) The percentage of cases of epidemic influenza under treatment has been since beginning of December, 1891, about fifty per cent.

(2) Diagnosis of the disease is based on the peculiar beefy appearance of the throat. This condition is always present even when no throat symptoms are complained of.

(3) I depended entirely upon ammonia.

(4) Mortality has been *nil* during this epidemic.

(5) The present epidemic compared with the epidemic of two years ago in symptoms, course, treatment, mortality, seems less severe.

I have found powdered boracic acid useful in nose and throat. I am inclined to think that powdering the noses with boracic acid during exposure has some preventive influence. The last time I had the disease myself I powdered

my children's noses daily with boracic acid, and they escaped with scarcely a distressing symptom, although they did get it mildly. On two former occasions when I had it, they took it quite severely.

DR. J. C. HALL, Friends' Asylum for the Insane, Frankford, Philadelphia.

—In relation to the prevailing epidemic of influenza I have to say in answer to your questions, first, but a very small percentage of our patients, not four or more than five, have been affected by it. The diagnosis is based upon the general symptoms as seen in this disease, febrile condition after an initiative chill, with general pains and various special symptoms, and a general loss of strength and spirits out of all proportion to the gravity of the case. There are no natural divisions, other than what I have noted, which would class this as a special disease and differing from the ordinary attacks of influenza. I have no suggestions to offer about treatment, other than I discourage the use of all the antipyretic derivatives from coal tar, as they are depressants to the heart and leave an unfavorable effect upon the nervous system in this all-depressing disease. I have not had any deaths, and the severity of the disease is not so great as last year or the year before. We have had epidemics of influenza in former years of less severity. I cannot but think that this winter's experience, as well as that of two years ago, would justify the assertion that the disease makes a more profound impression upon the nervous system than I have observed in former years, and many cases of insanity have been recorded due to the depressing effect of these attacks of influenza.

DR. JAMES GRAHAM.—The remarkable increase of sickness caused by the late epidemic of influenza is my excuse for not answering the questions promptly, and my answers will go back to January 1, as at present (January 16) I have no case of epidemic influenza.

(1) More than fifty per cent. of my cases were influenza.

(2) Diagnosis.—The premonitory symptoms: chilly and feverish sensations, headache, mostly frontal and severe, severe backache and general soreness, with a disproportionate amount of prostration. In some cases nasal and bronchial catarrh, in others nausea or vomiting, in most no marked disturbance of respiration or digestive organs, *but a diagnosis cannot be made till all other acute diseases are excluded*. In one case that I thought would prove to be influenza, on examining the throat I found to be diphtheria. In another case that I pronounced influenza, I found on the second day to be pneumonia, and almost all diseases, especially ordinary colds, appeared to be slightly inoculated with the epidemic.

(3) In about seventy per cent. of cases the nervous symptoms predominated; in about twenty per cent. the respiratory, and probably ten per cent. the digestive. It might be divided accordingly.

(4) Treatment.—Rest in bed is most important. In vigorous patients antipyrin, grains iii to iv, every three hours, acted like a charm. In feeble people phenacetin, grains x, acted almost equally well. Medicine only to be given as long as fever or pain remained (often less than twenty-four hours, usually less than forty-eight hours), in all cases quinia sulph., grains v, t. d., and ordinary treatment for other symptoms. The disease dieted the patient.

(5) Mortality.—About one per cent. (no deaths, except among people who were almost ready to die through old age or disease).

(6) The epidemic was much the same as two years ago, but the people were different. Then they looked on having the disease as a jest; this time they were afraid of it; they attended to its treatment carefully, and so avoided the sequelæ, on which *alone* the large mortality depends.

(7) This winter all acute diseases had more or less influenza engrafted on them. Many convalescents from influenza were in a vulnerable condition, took sick from slight exposure, and had not sufficient vitality to make speedy or complete recovery. Had it been possible for me to have done so, I would have made more than twice as many professional visits this winter as last, yet my practice is not increasing.

DR. L. J. LAUTENBACH.—The diseased conditions of the eye occasioned by influenza are many and various. The more frequent are hyperæmia of the conjunctiva and conjunctivitis; keratitis, which is rather unusual; retinal hyperæmia, retinitis and retinal hemorrhage; optic neuritis and atrophy of the optic nerve, and asthenopia, accommodative and muscular.

Conjunctival troubles, simultaneous with an attack, are frequent—indeed, are almost always present. They are sometimes produced by the nasal catarrh, but are more apt to be a concomitant of the intense meningeal congestion.

Keratitis, which I have rarely found, occurs most frequently after the subsidence of the acute symptoms of influenza.

Retinal hyperæmia and retinitis are among the early symptoms, and are apt to subside with the disappearance of the general disease. Retinal hemorrhage occurs usually on the first or second day, and is present only in cases of the markedly nervous type.

Optic neuritis is met with only in the nervous types of the disease, presenting itself on the second or third day.

Atrophy of the optic nerve occurs after a preceding neuritis, and is usually rapidly progressive, causing marked diminution of vision in a very short time. I have at present a patient under treatment whose near and distant vision before the attack of influenza was practically normal, yet whose vision, when examined by me six months from the onset of the disease, was reduced to about one-sixth for distance, with a corresponding loss for near.

Asthenopia, accommodative and muscular, is frequently met with; it is sometimes an early manifestation, but is more apt to be observed during convalescence.

The ear complications of the grippe are more common than those of the eye, and are not less interesting.

They can be divided into two classes—first, the catarrhal, and second, the non-catarrhal affections. In the first class, the ear affection is occasioned by the extension of nasal or pharyngeal inflammation to the Eustachian tube and middle ear. In the second, the condition is an accompaniment of the intense meningeal congestion so frequently observed.

In the catarrhal class we have first the simple acute congestion of the middle ear, which, if not cured, proceeds to suppuration with perforation of the

membrana tympani, or to involvement of the mastoid cells, or subsides, leaving a membrane thickened, distorted and retracted, often with ankylosis of the ossicles; secondly, we have chronic congestion of the middle ear. This condition is attended by little or no pain, but is often the cause of considerable thickening of the membrane, with consequent diminution of hearing.

Among the non-catarrhal conditions we have first the internal ear affections, which are very rare; I have seen but two in a total of about four hundred patients; secondly, congestion (non-inflammatory) of the membrane, which is occasionally followed by slight thickening of the membrane; and thirdly, hemorrhages of the membrane, which I have found present in seven patients. In treating cases caused or aggravated by the epidemic a difference in the usual treatment of similar affections should be made. During the course of the disease the engorged bloodvessels and general congestion of the mucous and serous membranes must be taken into account, and during convalescence the depression of the system occasioned by the extreme exhaustion.

To combat the former condition, vaso-motor tonics, cardiac sedatives and controllers should be used; local and general rest, hot baths advised, and such medicines as ergot, belladonna, pilocarpin and strychnia, with occasionally aconite, strophanthus or digitalis.

To restore the body to its normal tone and overcome the extreme exhaustion, no remedies are better than the carbohydrates, alcohol and sugar.

F. X. DERCUM, M.D.—So much prominence has been given to the part which the nervous system plays in influenza that the following brief statement of the writer's experience may not be out of place.

Without pausing to consider any special theory, let us take a glance at the various nervous phenomena that present themselves. These may be divided into two groups—first, those which accompany the active stage of the disease; and, secondly, those which make their appearance during its decline, and often constitute its sequelæ.

Among the symptoms of the first group we may find cephalalgia, rhachialgia and neuralgic pains. To these should be added as occurring with varying frequency, hebetude, mental depression, mental confusion, delirium, vertigo, dizziness, somnolence or insomnia. The cephalalgia, as is well known, may exist independently of any involvement of the nares. The pain along the spine likewise exists without demonstrable visceral disease. The neuralgic pains appear to follow the nerve-trunks, but may be associated with dull and diffused rheumatoid pains. They may be seated in the face, the head, the trunk or the limbs. Lastly, the mental symptoms, when present, may be independent of any pronounced rise of temperature.

Among the symptoms of the second group we find first and foremost neurasthenia. The neurasthenia is evidenced, *first*, by great weakness, both bodily and mental; *secondly*, by subnormal temperature of the general surface, with occasionally very marked coldness of the extremities; *thirdly*, by a persistent and often uncontrollable sweating; *fourthly*, by the depressed condition of the circulation as indicated by the feeble and rapid pulse, the diminished force of the heart-sounds, lividity of the extremities, and occasionally by aortic pulsations;

fifthly, by various subjective symptoms, such as occipital or frontal headache or sense of constriction and tinnitus; *lastly*, by altered mental states, such as hypochondriasis or hysteria.

Second in importance to neurasthenia, we have, among symptoms of the second group, insanity. Frequently associated with neurasthenia, it may be an outcome of the latter. Indeed, the insanity following influenza is essentially an insanity of profound nervous exhaustion, and manifests itself either in the form of melancholia, confusional insanity, or active delirium simulating mania.

Third in the scale of importance are symptoms of organic disease of the nervous apparatus. They would be, as claimed by various authors, symptoms of meningitis, of cortical disease, of various forms of myelitis, and finally of peripheral neuritis.

In the experience of the writer these symptoms differ widely with regard to the frequency of their occurrence. To begin with the first group, we find the headache present in every or almost every instance. The rhachialgic or even diffused backache, though very frequent, is by no means universal. This is likewise true of the neuralgic pains. The latter are at times entirely absent. The vague aches and dull pains, however, are practically constant.

As regards the mental symptoms, hebetude and depression appeared to be almost universal. Vertigo and dizziness were quite common, while mental confusion and delirium were distinctly less frequent. In about one-half the cases sufficiently ill to be confined to bed, disturbances of sleep, with either insomnia or somnolence, were present.

Neurasthenia was certainly very common, and at times exceedingly grave. In some instances individual symptoms were excessively pronounced and exceedingly persistent. This was notably the case with the sweating and the general feebleness of the circulatory apparatus. In addition, it is to be noted that the asthenia was, as a rule, very obstinate to treatment.

Regarding the frequency of insanity, it should be stated that, in proportion to the enormous number of cases of influenza existing in the present and the preceding epidemic of 1889-'90, insanity from grippe is very rare. The writer's experience embraces, in this respect, two hospitals, and the number of cases coming under his observation during both epidemics can be counted on his fingers. Further, the tendency in the majority of cases was toward recovery, especially when absolute rest in bed and forced feeding were instituted.

With regard to the organic diseases of the nervous system resulting from grippe, the writer's experience can be stated with equal brevity. Of an actual instance of demonstrable meningitis or cortical disease, the writer has seen not one. The same is true of disease of the cord or its membranes. Of limited peripheral neuritis the writer has seen in both epidemics but two instances. Of multiple neuritis two cases likewise form the sum of his experience. The significance of these statements may be suggested when it is learned that this experience is drawn from the rich nervous clinics of the University Hospital, the wards of Blockley, and, to some extent, the Orthopedic Hospital. Certainly, in view of the fact that influenza has attacked the great mass of the community, the inference is justified that organic nervous affections resulting

from grippe are among the rarest of occurrences, and belong rather to the curiosities and anomalies of the affection than to its intrinsic history.

DR. GEO. S. GERHARD, Ardmore.—(1) The epidemic occurred in about twenty-five per cent. of my cases.

(2) Diagnosis rested on the fact that the general symptoms were out of proportion to local conditions.

(3) The natural divisions seem to be nervous, febrile and catarrhal.

(4) Strychnia, liquor ammoniæ acetatis (with or without aconite), ammonium chloride, terebene, sandalwood oil.

(5) Mortality has been *nil* in uncomplicated cases.

(6) Compared with two years ago, there has been more tendency to fever, less pneumonia, but the disease seems more contagious.

(7) Compared with other winters, when no epidemic existed, about the same amount of disease existed, though, perhaps, certain exanthemata are more prevalent, such as roseola and scarlatina.

DR. D. F. WOODS.—(1) Epidemic influenza existed in about twenty per cent. of my cases.

(2) Diagnosis depended on headache, pain in back, coryza and sometimes general soreness all over the body.

(3) Symptoms which manifest themselves first in one class of patients do not always appear until later in other patients, sometimes appearing last. Course varies from two to six weeks.

(4) Treatment was employed according to the character of the symptoms presented. When high temperature and headache, acetanilide with caffeine; after the cerebral symptoms subside, quinine and carbonate of ammonia. Strychnia, belladonna and quinine are in some cases useful.

(5) I have lost one case by relapsing into pneumonia from imprudent exposure during convalescence.

(6) In most cases the disease is more mild than that of two years ago. Symptoms, course and treatment were, however, the same, while the mortality was less.

(7) Other diseases this winter appear to be more malignant than in years when no epidemic existed. I consider the disease not serious unless neglected, or unless sequelæ appear resulting from exposure after the patient begins to convalesce.

DR. ROLAND G. CURTIN.—The heart symptoms in the two recent epidemics differed rather in degree than in kind. In the first outburst the epidemic of 1889-'90, the heart played an important part in the mortality, but was much less important in the second explosion in the winter of 1891-'92. In the first outburst the influenza-poison seemed to overpower the heart; in the second it seemed simply to disturb that organ. Fatal heart-failure was quite a frequent association of the early catarrhal fever and the catarrhal pneumonia of the influenza of the winter of 1891. During the last few months I have seen a great many of the severer cases of influenza, many of which died. According to my observations the heart was quite strong, being apparently one of the last organs to give away. The method of death in the majority of these cases

seemed to be as follows: The patient was first affected by influenzal pneumonia with a deepening hebetude, from which, however, he could be aroused until the last; the heart maintaining a regular strong action, and the pulse being quite full and strong, at about 85 to 95, only giving way a short time before death.

The condition causing death seemed to be one of general nervous exhaustion, rather than one of pulmonary or cardiac weakness. Sometimes instead of the hebetude there was unnatural brightness preceding death. In these cases the heart performed its work well up to the moment of dissolution. In the winter of 1891-'92 I have observed a number of cases of irregular and intermittent heart-action, unassociated with symptoms of heart-failure. This condition was often associated with a want of synchronous action between the two sides of the heart. The action of the heart in these cases was frequently very much accelerated. On listening over the heart the sounds were quite sharp, even the first being heard quite plainly. The pulse, although altered, as already mentioned, was not a weak one. These conditions of the heart were sometimes found with attacks of so-called pneumonia, and in two cases the pulmonary conditions suddenly disappeared, being seemingly supplanted by the cardiac condition, suggesting the nervous origin of both. I would say that the condition of the heart found associated with and following the influenza was due to an affection of the inhibitory nerves of the heart. There was no special disposition to endocardial inflammation during the last two years; in fact, it would seem to be, so far as my experience goes, less frequent during that time. Angina pectoris and anginose symptoms have been observed very frequently during the last year and a half. These seem to be generally in men, and unassociated with organic disease. The angina often alternated with attacks of asthma. Confinement to bed, careful diet, nervous sedatives, heart tonics, and counter-irritation generally afforded relief.

The treatment for heart-failure, according to my experience, has been as follows: First in importance is alcohol, next came citrate of caffeine as the best stimulant to the heart, being also a stimulant to the respiratory centre in lung cases, and a stimulant to the kidneys. It was also prompt and efficient in cases of irregularity of the heart. *Cactus grandiflora* added greatly to the efficiency of the caffeine as a simple heart tonic, well borne by the stomach, and incapable of doing harm. *Digitalis* and *strophanthus* were found to be of benefit in small doses where the stomach tolerated them, and when the pulmonary circulation was not obstructed. I have not been impressed with the efficacy of large doses or the long-continued use of smaller doses of strychnia. While therapeutic resources are at least in theory equal to all demands made by rapidly-acting hearts, we have actually no reliable means for increasing the rapidity of a slow heart, such as we find so frequently in the course of influenza. The reserved strength of the heart being so diminished, it seems probable that even if we present such a drug it might, under the circumstances, prove disastrous. The heart itself, unimpaired in muscular tone, simply lacks innervation from its centre supply and does its best under the circumstances.

The actual indications seem to be to keep the patient free from all bodily or mental excitement, and to stimulate the general nutrition until the disease yields,

rather than to exhaust the centres still more by ill-timed and ill-judged local stimulation. This is the secret of beneficial action of alcohol, acting as a stimulant to produce nerve force rather than creating a local excitement which would use up still more rapidly the deficient supply. One proof that the weakness of the heart was of nervous origin was the rapidity with which it presented itself and the rapid recovery. A possible element in heart weakness met with late in the disease was the anaemia which interfered with the nutrition of the heart-muscle. Sulphonal was the safest and most satisfactory drug for combating the insomnia, being well borne even by comparatively weak hearts.

From a study of these answers, the following summary seems correct concerning the recent epidemic of influenza in Philadelphia :

(1) The percentage of cases of epidemic influenza this winter has varied from five to ninety per cent. of all cases treated by physicians. The average percentage seems to vary between twenty and fifty per cent. The disease seems to spread from case to case more slowly than it did two years ago.

(2) The symptoms which constitute the diagnosis are generally accepted as the same. These symptoms are the same as those which have been described as occurring in other epidemics of the same disease, running as far back as authentic accounts can be found, showing the lack of change in the character or virulence of the poison for at least 200 years.

(3) Some variety of opinion exists as to the natural divisions in which cases can be placed, but probably nearly all accept as the basis for classification the presence or absence of severe local manifestations. There seems also a general agreement that cases can change quickly from one form to another.

(4) A great variety of treatment prevails, dependent on the conditions present demanding recognition. To do this subject justice, generalization will not suffice; to repeat what has been better said already is unnecessary. However, no specific seems to have been fully established as yet, and the use of the newer antipyretics in a routine way is discouraged. All authorities are agreed on two points, however: (*a*) complete rest during acute attacks of epidemic influenza, and (*b*) extreme care and caution during convalescence.

(5) The mortality of epidemic influenza this winter has been low, considering the number of cases affected. The mortality of two years ago is greater, due probably to the virulence of the poison, and, possibly, to the lack of care in convalescence.

(6) The present epidemic, compared with the epidemic of two years ago, is milder in symptoms, course and treatment.

(7) There seems to be more disease of other kinds, severer in character this winter than in other winters in which no epidemic existed, many diseases having engrafted on them more or less influenzal symptoms.

Following are appended the tables of the Board of Health for the deaths of the past three years, together with the principal causes of death.

ADAMS, THE INFLUENZA IN PHILADELPHIA.

21

	1891.	1890.	1889.*
Deaths in Philadelphia	23,367	21,732	20,536
Adults	12,928	12,262	11,184
Minors	10,439	9,470	9,378
Males	11,886	11,139	10,499
Females	11,481	10,593	10,037

AGES.

Under 1 year	5,370	5,287	5,268
From 1 to 2 years	1,401	1,305	1,287
From 2 to 5 years	1,501	1,320	1,197
From 5 to 10 years	943	654	663
From 10 to 20 years	961	909	920
From 20 to 30 years	1,985	2,095	1,926
From 30 to 40 years	2,003	2,019	1,814
From 40 to 50 years	1,762	1,854	1,673
From 50 to 60 years	1,793	1,717	1,560
From 60 to 70 years	2,025	1,953	1,796
From 70 to 80 years	1,862	1,604	1,491
From 80 to 90 years	909	850	817
From 90 to 100 years	7	158	116
From 100 to 120 years		8	6

PRINCIPAL CAUSES OF DEATH.

	1891.	1890.	1889.
Apoplexy	565	496	459
Bright's disease	526	477	397
Cerebro-spinal meningitis	26	25	37
Congestion of brain	314	274	325
Congestion of lungs	219	235	210
Consumption of lungs	2,624	2,765	2,532
Convulsions	901	824	867
Croup	428	415	352
Cholera infantum	1,211	918	838
Diphtheria	918	528	375
Dysentery	102	131	86
Diseases of heart	1,325	1,211	820
Fever, typhoid	684	666	736
Fever, scarlet	327	178	298
Inflammation of brain	729	685	702
Inflammation of bronchi	539	524	387
Inflammation of kidneys	281	241	218
Inflammation of peritonæum	241	229	242
Inflammation of stomach and bowels	568	611	676
Inflammation of lungs	2,111	2,026	1,582
Influenza	304	147	
Inanition	541	550	598
Marasmus	937	857	890
Old age	805	817	850
Paralysis	416	407	399

The deaths reported as due directly to influenza for 1891 were 304—157 more than in 1890.

No deaths from influenza were reported in Philadelphia until January 5, 1890. The epidemic had largely spent its force by February 8, 1890. Comparing these five weeks with the five weeks from December 5, 1891, to January 9, 1892, at which time the general consensus of opinion agree that the last epi-

demic was largely over, we find the following reports, in influenza, pneumonia, consumption, old age, paralysis, heart disease and bronchitis:¹

	January 5 to Feb. 8, 1890.	Dec. 5, 1891, to Jan. 9, 1892.
Influenza	129	260
Pneumonia	658	687
Consumption	485	360
Old age	166	132
Paralysis	76	60
Heart disease	139	205
Bronchitis	115	147
Totals	1,768	1,851

A study of these sets of tables shows that there has been a slight increase in the mortality of the city in the past three years, more marked during the epidemics, the deaths from influenza and its complications attracting attention more from the fact that the disease is not constantly present, and from its epidemic nature when it does appear.

Curiously enough, we possess an accurate picture of the epidemic of influenza which appeared in Philadelphia in the autumn of 1789, in the spring of 1790 and in the winter of 1791, written by Dr. Benjamin Rush. It is a curious coincidence that this epidemic appeared exactly one hundred years ago. In order to compare the condition of influenza then with its present appearance, portions of his report are copied:

"In the beginning of October a number of the members of the first Congress, that had assembled in New York under the present national government, arrived in Philadelphia, much indisposed with colds. They ascribed them to fatigue and night air to which they had been exposed in travelling in the public stages; but from the number of persons who were affected, from the uniformity of their complaints, and from the rapidity with which it spread through our city, it soon became evident that it was the disease so well known of late years by the name of influenza.

"The symptoms which ushered in the disease were generally a hoarseness, a sore throat, a sense of weariness, chills, and a fever. After the disease was formed it affected more or less the following parts of the body. Many complained of a great itching in the eyelids. In some, the eyelids were swelled. In others, a copious effusion of water took place from the eyes; and in a few there was a true ophthalmia. Many complained of great pains in one ear, and some of pains in both ears. Sneezing was an universal symptom. In some it occurred not less than fifty times a day. In some the nose discharged drops, and, in a few, streams of blood, to the amount in one case of twenty ounces. In many cases it was so much obstructed as to render breathing through it difficult. In some cases there was a total defect of taste. In others there was a bad taste in the mouth, which frequently continued through the whole course of the disease. In some, there was a want of appetite. In others it was perfectly natural. Some complained of soreness in their mouths as if they had been inflamed from holding pepper in them. Some had swelled jaws, and many complained of toothache. I saw only one case in which the disease produced a coma.

¹ For these tables thanks are due to Mr. J. V. P. Turner, Registrar of the Board of Health.

"Many were affected with pains in the breast and sides. A difficulty of breathing attended in some, and a cough was universal. Sometimes this cough alternated with a pain in the head. In most of the cases which terminated fatally, the patients died of pneumonia notha. The stomach was sometimes affected by nausea and vomiting; but this was far from being an universal symptom.

"I met with four cases in which the whole force of the disease fell upon the bowels, and went off in diarrhoea; but in general the bowels were regular or costive. The limbs were affected with such acute pains as to be mistaken for rheumatism, or for the break-bone fever of 1780. The pains were most acute in the back and thighs.

"Profuse sweats appeared in many in the beginning over the entire body, but without affording any relief. It was in some cases accompanied by erysipelatous, and in four cases which came to my knowledge it was followed by miliary eruptions. The pulse was sometimes tense and quick, but seldom full. In a great majority of those whom I visited it was quick, weak and soft.

"There was no appearance in the urine different from what is common in all fevers. The disease had evident remissions, and the fever seldom continued above three or four days, but the cough and some other troublesome symptoms sometimes continued two or three weeks. In a few the fever terminated in a tedious and dangerous typhus.

"In several pregnant women it produced uterine hemorrhages and abortions.

"Even previous and existing disease did not protect patients from it. It insinuated into sick chambers, and blended itself with every species of chronic complaint.

"Many thousand persons who had the disease were not confined to their homes, but transacted their business as usual out of doors. A perpetual coughing was heard in every street of the city. Buying and selling were rendered tedious by the coughing of the farmer and the citizen who met in the market-place. It even rendered divine services scarcely intelligible in the churches.

"It proved fatal (with few exceptions) only to old people, and to persons who had been previously debilitated by consumptive complaints. It likewise carried off several hard drinkers. It terminated in asthma in three persons whose cases came under my notice, and in pulmonary consumption in many more. I met with an instance in a lady who was much relieved of a chronic complaint in her liver, and I heard of another instance of a clergyman whose general health was much improved by a severe attack of the disease.

"In the treatment of the influenza I was governed by the state of the system. Where inflammatory diathesis discovered itself by a full or tense pulse, or where great difficulty in breathing occurred, or where the pulse was low and weak in the beginning of the disease, I ordered moderate bleeding. In a few cases in which the symptoms of pneumonia attended, I bled a second time with advantage. In all these instances of inflammatory affection, I gave the usual anti-phlogistic medicines.

"In cases where no inflammatory action appeared in the system, I pre-

scribed cordial drinks and diet, and forbade every kind of evacuation (bleeding). I saw several instances of persons who had languished for a week or two with the disease, who were suddenly cured by eating a hearty meal, or drinking half a pint of wine, or a pint of warm punch. In all these cases of weak action in the bloodvessels, liquid laudanum gave great relief, not only by suspending the cough, but by easing the pains in the bones.

"The duration of this epidemic in our city was about six weeks. It spread from New York and Philadelphia in all directions, and in a course of a few months had pervaded every State in the Union. It was carried from United States to several of the West Indies. It prevailed in the Island of Grenada, in the month of November, 1789, and it was heard of in the course of the ensuing winter in the Spanish settlement in South America."

THE SPREAD OF INFLUENZA IN THE MOUNTAINS OF SWITZERLAND.

SERTZ (*Deutsche medicinische Wochenschrift*, December 17, 1891) endeavors to throw some light upon the question of the contagiousness or non-contagiousness of influenza by recording some facts observed by him in Switzerland.

The valley, through which five trains pass each way daily, was stricken with influenza. The communication between this valley and the settlements in the mountains leaves but little doubt that the latter were infected by influenza through this communication. Julian Pass, 6,900 feet high, is visited daily by the post. All of the inhabitants of the place were seized with influenza, and the author thinks the infection took place through Engadin and Davos, the latter place being in communication with the whole country. At Davos, a guest was taken ill with influenza on December 12, 1889, and from here the contagion spread. There had been no communication with Grimsel, 5,600 feet high, since the 1st of December. On the 21st of December, the watchman went to Guttanen, where his employer lay sick of influenza. The watchman returned to Grimsel, and was seized on the third day with influenza. Santis, at a height of 7,500 feet, was never affected by influenza because no communication was held with the valley while the epidemic raged.

On Sunday, January 5, 1890, one of the watchmen of Gotthard Hotel went to the station of the Gotthard railroad, where many persons were affected by influenza. This man visited many of the homes where there were influenza patients, and no one but he went up the mountain that winter. He reached the mountain on the 6th of January not at all sick and remained well; but a second watchman, who had not gone to the valley, was taken sick on January 15 with what the author thinks was influenza, and he thinks infection took place through the clothes of the first man which were hung in the bedroom of the second. Pilatus had not been visited by the inhabitants of the valley, 6,000 feet below, since the end of November. On 29th of December, 1889, one watchman went to the valley, where influenza was rife. He returned January 4, and was met on the mountain by his fellow-watchman. Both men were seized with influenza, one on January 4, and the other on January 8. The watchman of Eggishorn Hotel was well until he went to Martinsberg, where a number of persons were suffering from influenza, when he also was attacked. Both watchmen of Rif-felalp, 6,600 feet high, were attacked while on the mountain, but they both visited the valley on three occasions. On the last visit they went into a house where there was influenza, and were seized with influenza themselves on the second day of their return.

Of twenty-two residents of the Great St. Bernard, twenty-one were affected with influenza. This place had a free communication with the valley during the whole winter.

The author believes that the above facts prove that influenza is contagious.

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